

Example from profile Rolling Mill

Fig. 1

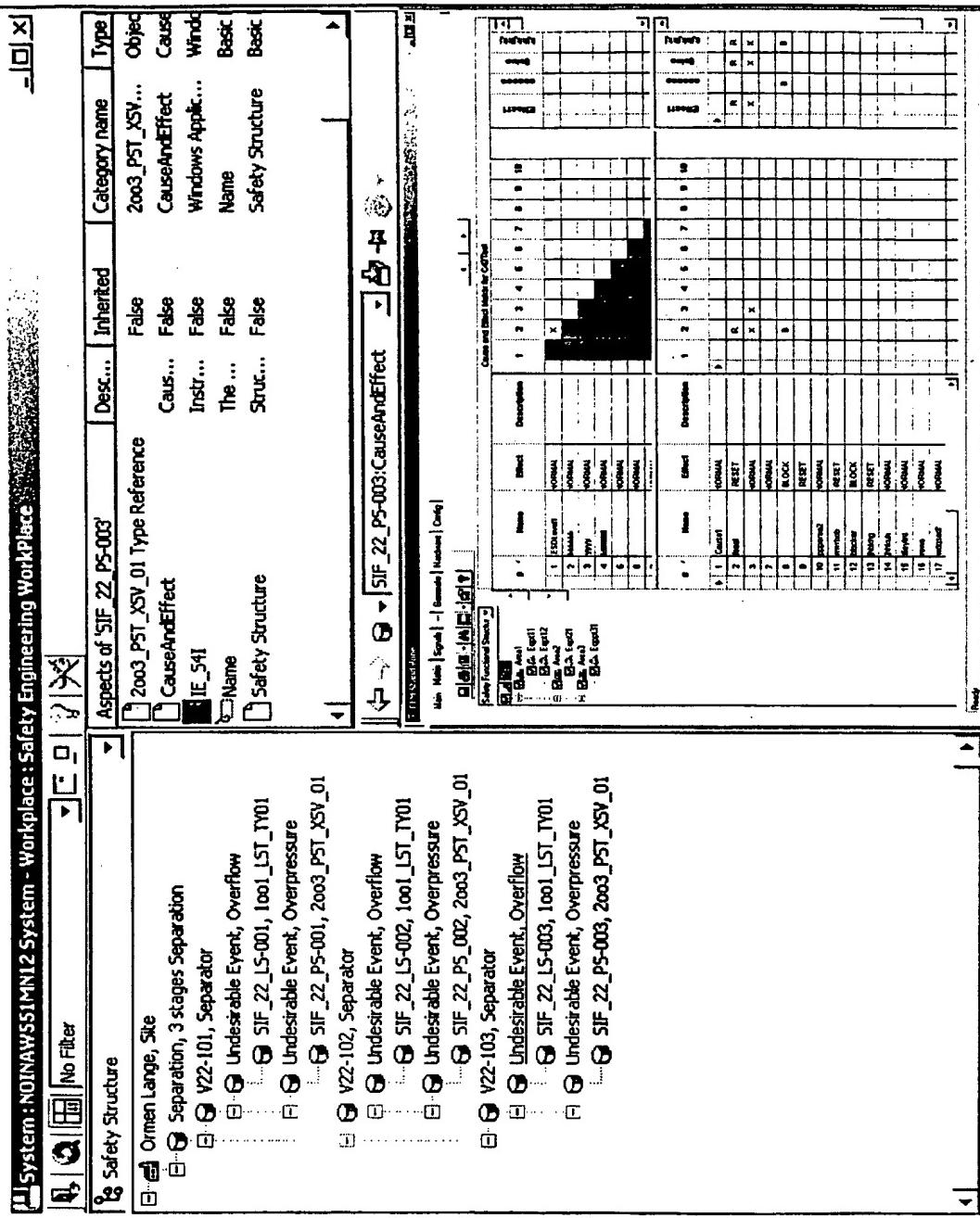
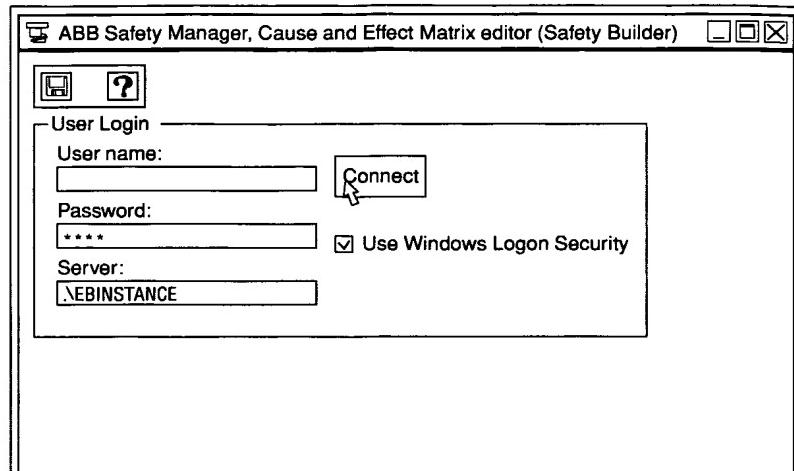
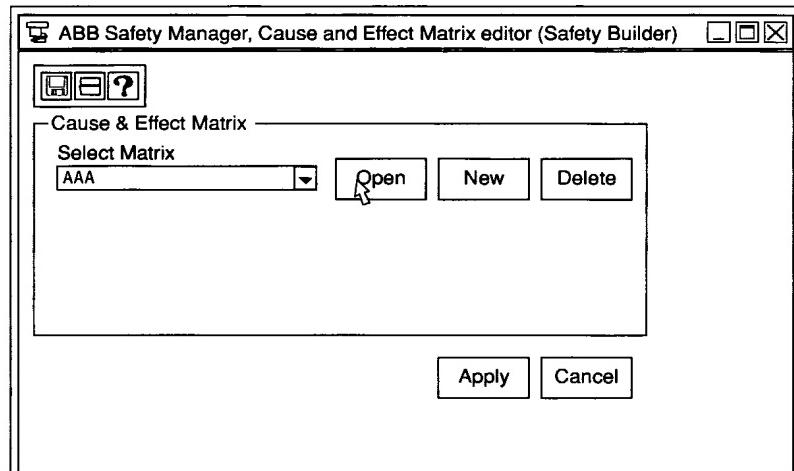


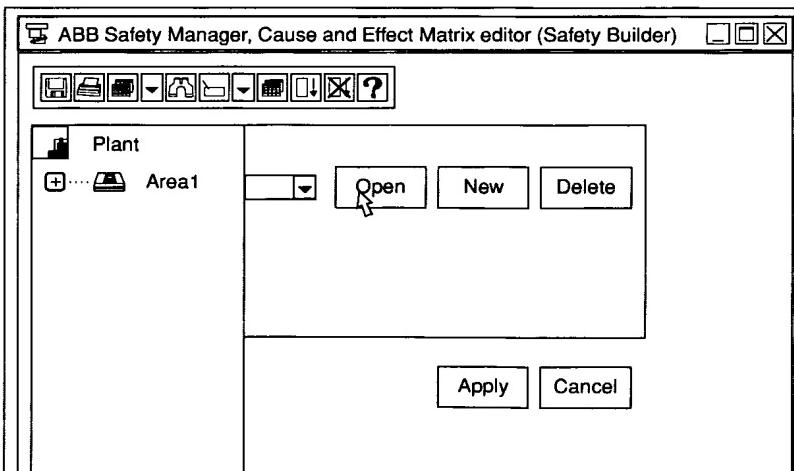
Fig. 2



1



2



3

Fig. 3

4

ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)

#	Name	Description	Designation	1	2	3	4	Effekt
1	ESDLevel1		ZLEV1				X	
2								
3								
4								
5								
6								
7								
#	Name	Description	Designation	1	2	3	4	Effekt
▶ 1	Cause1		ZCAU1	▶ X				▶ X
2	regfs							
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

5a

ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)

#	Name	Description	Designation	1	2	3	4	Effekt
1	ESDLevel1		ZLEV1				X	
2	Cause1		ZCAU1	▶ X				▶ X
3	regfs							
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

Fig. 3 cont.

5b

ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)

#	Name	Description	Designation	1	2	3	4	Effekt
1	ESDLevel1		ZLEV1					X
2								
3								
4								
5								
6								
7								
#	Name	Description	Designation	1	2	3	4	Effekt
1	Cause1		ZCAU1	X				X
2	regsf1							
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

5c

ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)

#	Name	Description	Designation	1	2	3	4	Effekt
1	ESDLevel1		ZLEV1					X
2								
3								
4								
5								
6								
#	Name	Description	Designation	1	2	3	4	Effekt
1	Cause1		ZCAU1	X				X
2	regsf1							
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

6

#	Name	Description	Designation	1	2	3	4	Effekt
1	Cause1		ZCAU1	X				X
2	regsf1							
3								
4								
5								
6								

Fig. 3. cont.

6

Cause and Effect Matrix for AAA

#	Name	Description	Designation	1	2	3	4	Effect
1	ESDLevel1		ZLEV1	X				X
2								
3								
4								
5								
6								
7								

#	Name	Description	Designation	1	2	3	4	Effect
1	Cause1		ZCAU1	X				X
2	regsts							
3								

7a

CEM Cause: Cause1

Variable		3 Signals	
Name	Cause1	Area	Plant
Designation	ZCAU1	Delay (s):	0
Designation			
Active	NORMAL		
Latchable		<input type="checkbox"/>	
Blockable		<input type="checkbox"/>	
< Play Next >			
Position no: 1			

7b

CEM Cause: Cause1

Variable		3 Signals																					
Input Datatype: bcol		Confirmation criteria:	1 Signals out of: 3																				
<table border="1"> <thead> <tr> <th colspan="4">Signals U</th> </tr> <tr> <th>Name</th> <th>Description</th> <th>Assign</th> <th>Normal</th> </tr> </thead> <tbody> <tr><td>Samplecolla1</td><td>Sample signal</td><td>IX0.11.1.1</td><td>ND</td></tr> <tr><td>Samplecolla2</td><td>Sample signal</td><td>Unassigned</td><td>ND</td></tr> <tr><td>Samplecolla3</td><td>Sample signal</td><td>Unassigned</td><td>ND</td></tr> </tbody> </table>				Signals U				Name	Description	Assign	Normal	Samplecolla1	Sample signal	IX0.11.1.1	ND	Samplecolla2	Sample signal	Unassigned	ND	Samplecolla3	Sample signal	Unassigned	ND
Signals U																							
Name	Description	Assign	Normal																				
Samplecolla1	Sample signal	IX0.11.1.1	ND																				
Samplecolla2	Sample signal	Unassigned	ND																				
Samplecolla3	Sample signal	Unassigned	ND																				
<input type="button" value="Show available signals"/>		<input type="button" value="OK"/>	<input type="button" value="Apply"/>																				
<input type="button" value="Edit Cause"/>		11/2/2003 S 48 Pm																					

Fig. 3. cont.

7C

CEM Cause: Cause1

Variable

Input Datatype: bcol Confirmation

Signals	
Name	Description
Samplecolla1	Sample signal
Samplecolla2	Sample signal
Samplecolla3	Sample signal

Hide available signals Hide signals

Signals

CEM Cause: Cause1

Variable

Input Datatype: bcol Confirmation

Signals	
Name	Description
Samplecolla1	Sample signal
Samplecolla2	Sample signal
Samplecolla3	Sample signal

Hide available signals Hide signals

Edit Cause

8a

ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)

Plant
Areal1

Cause and Effect Matrix for AAA

#	Name	Description	Designation	1	2	3	4	Effekt
1	ESDLevel1		ZLEV1		X			X
2								
3								
4								
5								
6								
7								

#	Name	Description	Designation	1	2	3	4	Effekt
1	Cause1		ZCAU1	X				X
2	regfs							
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

Fig. 3 cont.

8b

ABB Safety Manager, Cause and Effect Matrix editor (Safety Builder)

Cause and Effect Matrix for AAA

#	Name	Description	Designation	1	2	3	4	Effekt
1	ESDLevel1		ZLEV1					X
2								
3								
4								
5								
6								
7								

#	Name	Description	Designation	1	2	3	4	Effekt
► 1	Cause1		ZCAU1		X			► X
2	regfs							
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

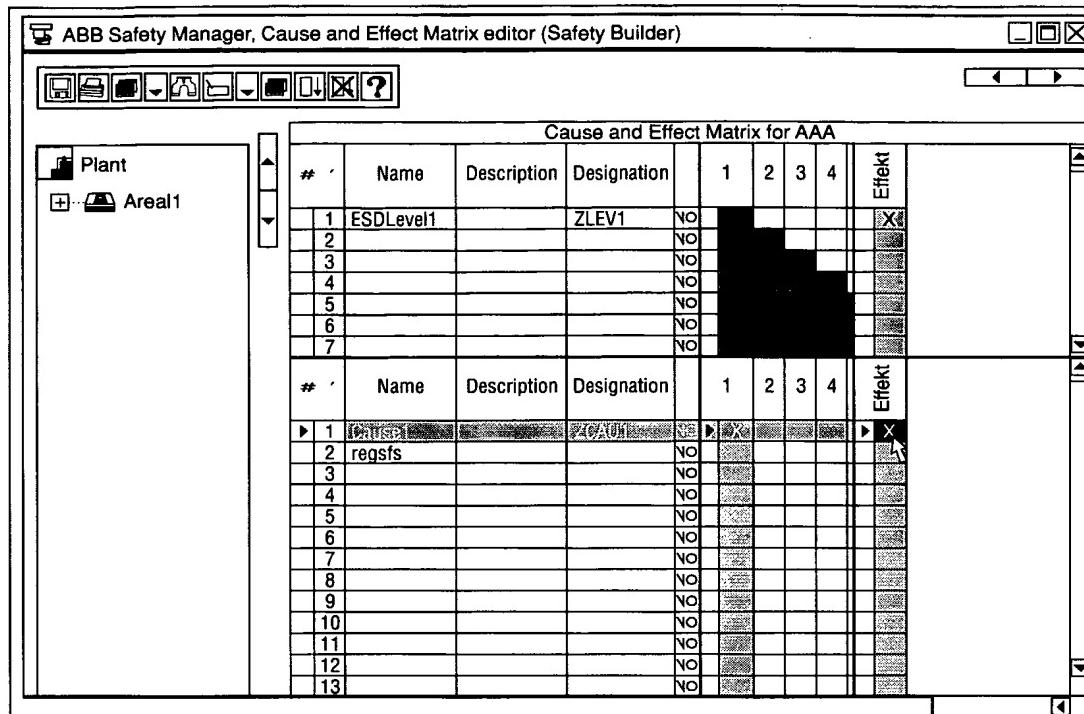
8c

#	Name	Description	Designation	1
1	ESDLevel1		ZLEV1	
2				
3				
4				
5				
6				
7				

#	Name	Description	Designation	1
► 1				
2	regfs			
3				
4				
5				

#	Name	Description	Designation	1
1	ESDLevel1		ZLEV1	NO
2				NO
3				NO
4				NO
5				NO
6				NO
7				NO

Fig. 3 cont.



9

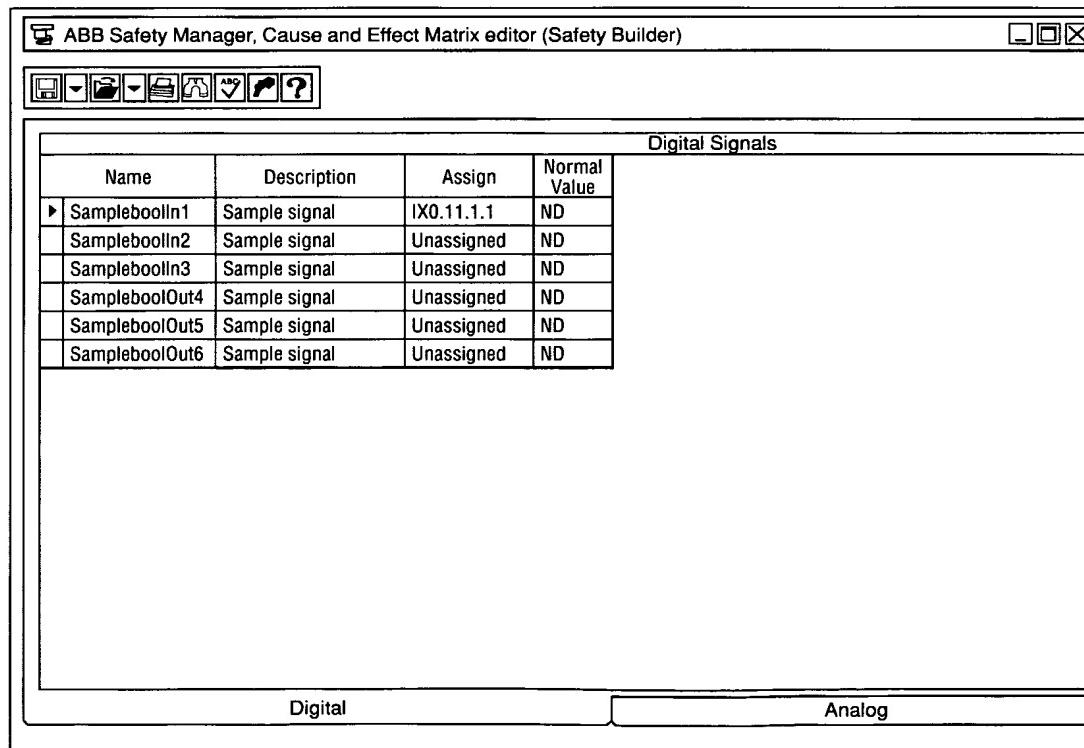
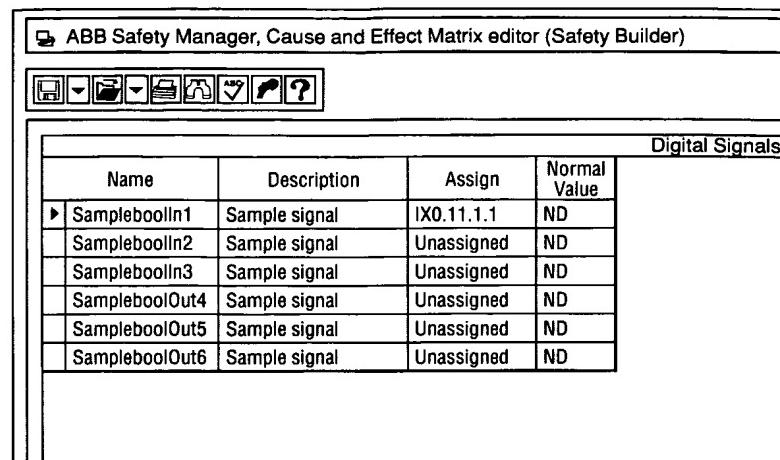
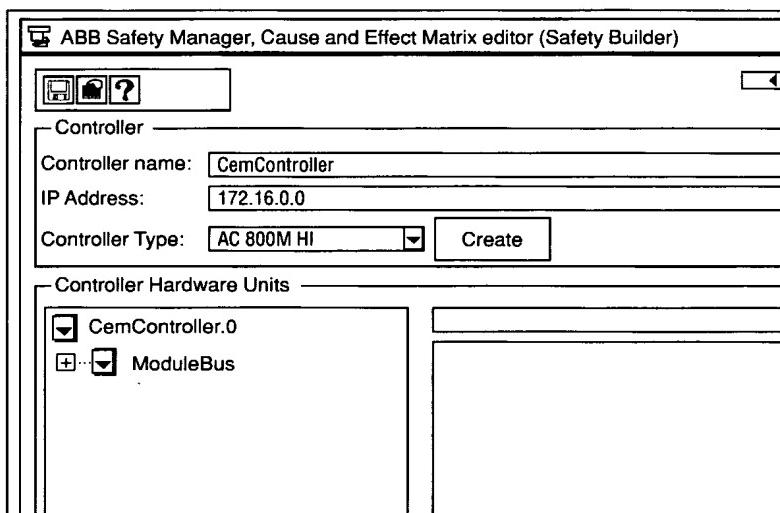


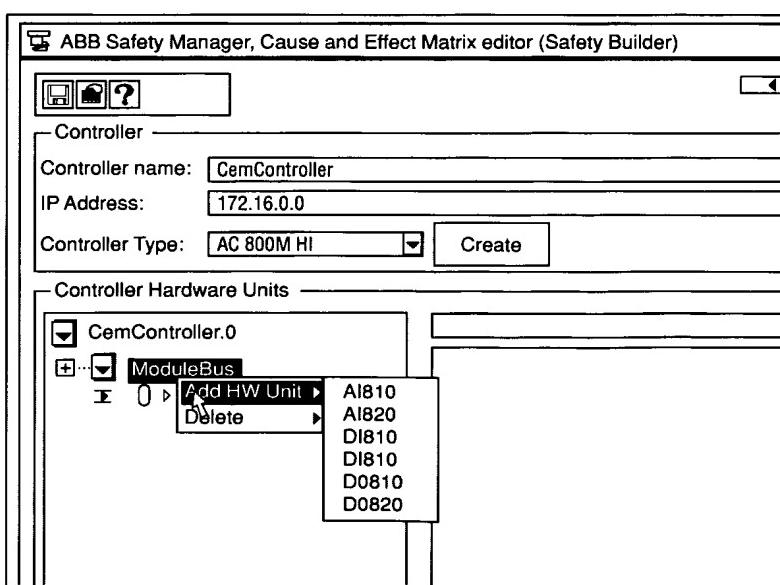
Fig. 3 cont.



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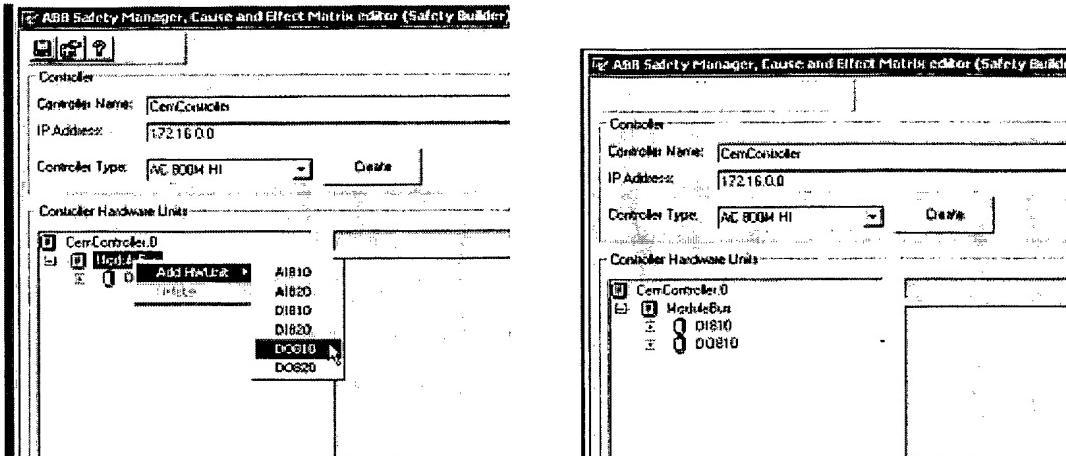


11



12

Fig. 3 cont.



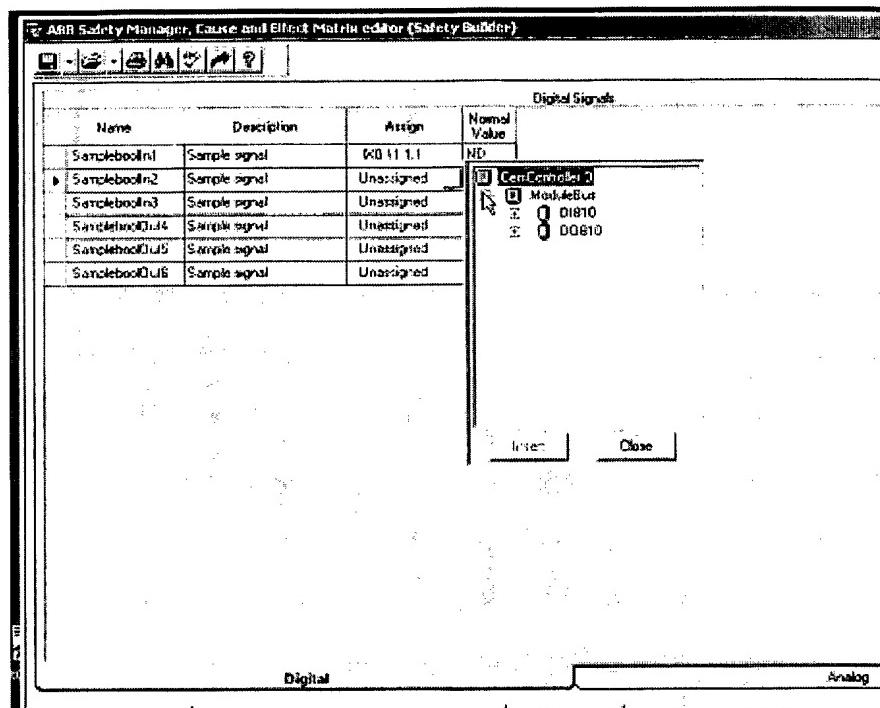
13

The image shows a screenshot of the ABB Safety Manager software interface, specifically the Cause and Effect Matrix editor (Safety Builder) module. The window title is "Digital Signals".

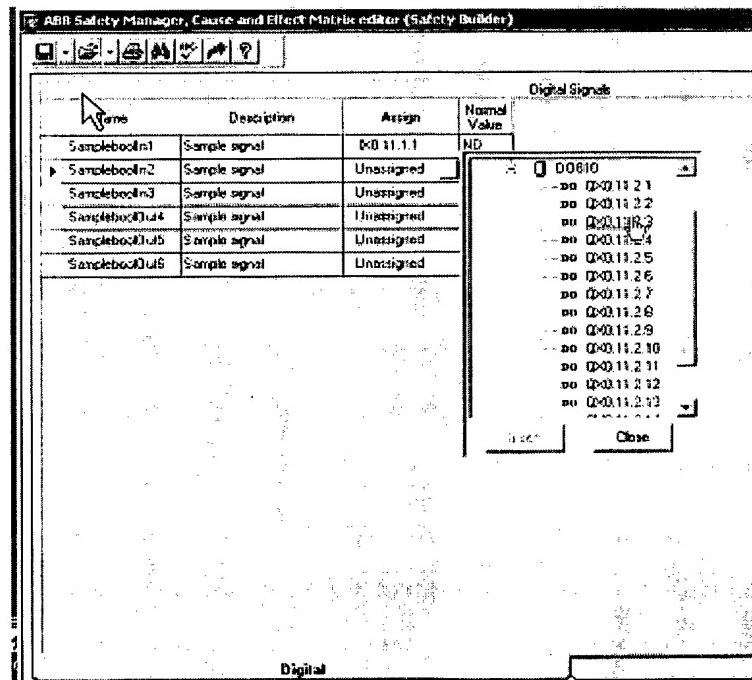
Name	Description	Assign	Normal Value
SampleboolIn1	Sample signal	X0#1.1.1	ND
SampleboolIn2	Sample signal	Unassigned	ND
SampleboolIn3	Sample signal	Unassigned	ND
SampleboolOut4	Sample signal	Unassigned	ND
SampleboolOut5	Sample signal	Unassigned	ND
SampleboolOut6	Sample signal	Unassigned	ND

14

Fig. 3 cont.

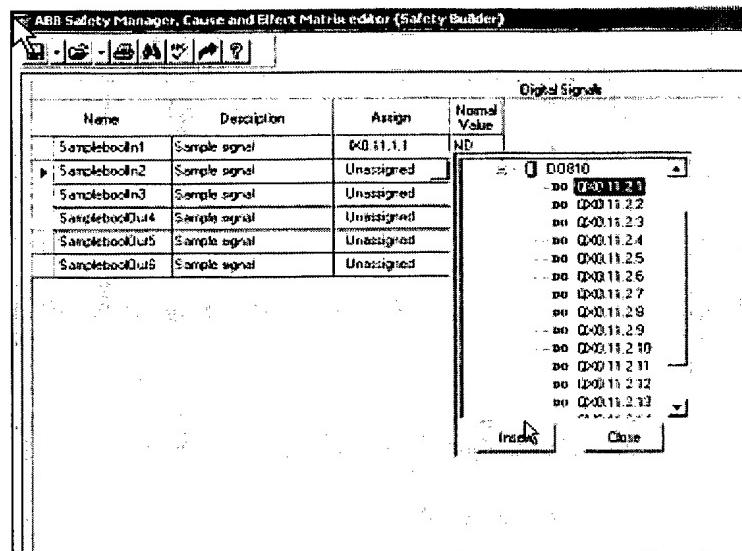


15a

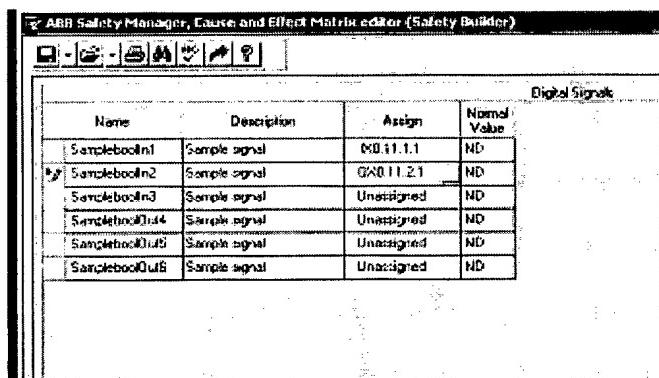


15b

Fig. 3 cont.



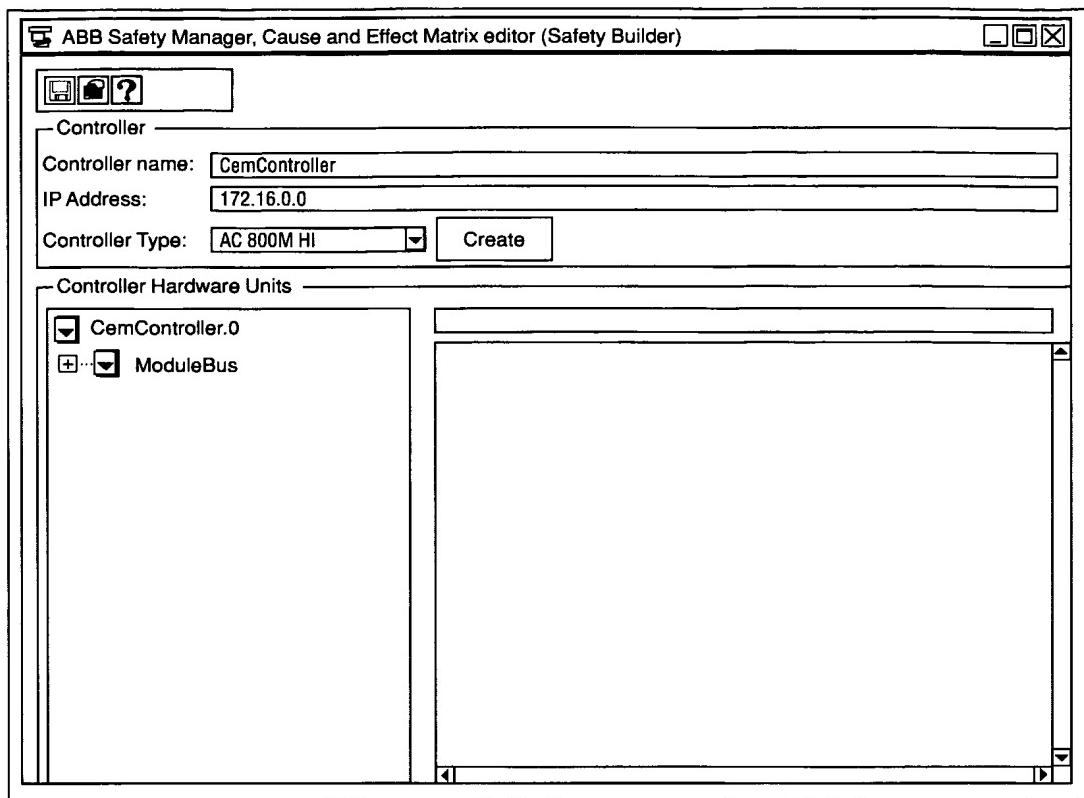
15c



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Fig. 3 cont.

17



18

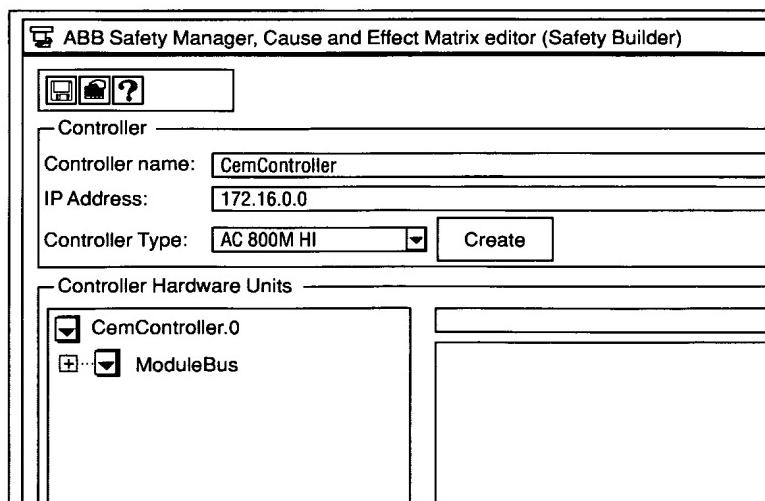
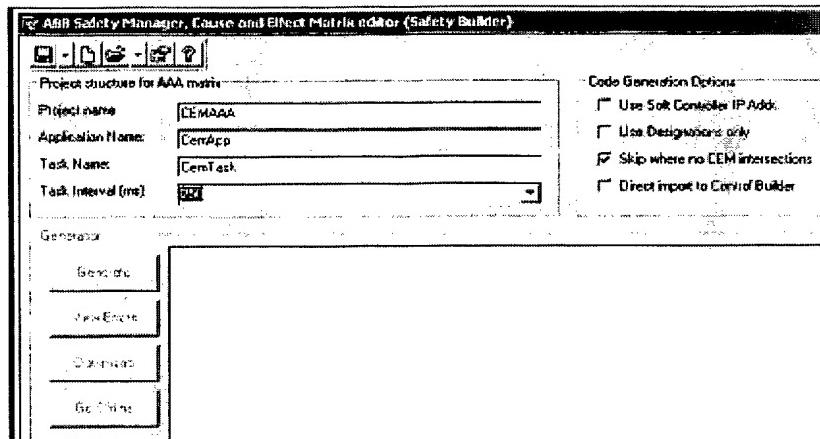


Fig. 3 cont.

19



20

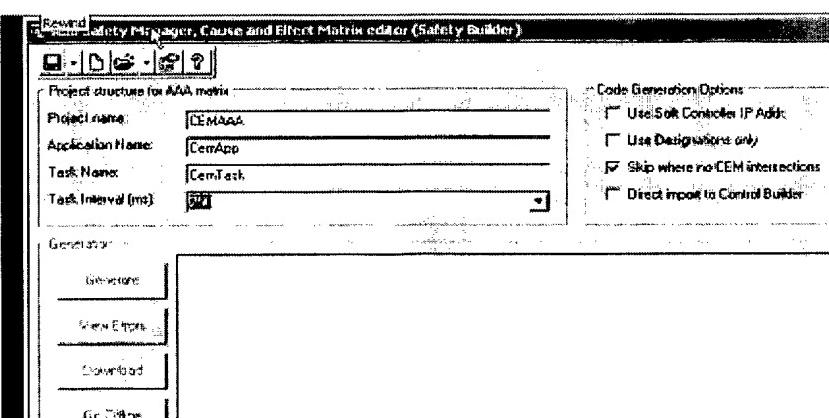


Fig. 3 cont.

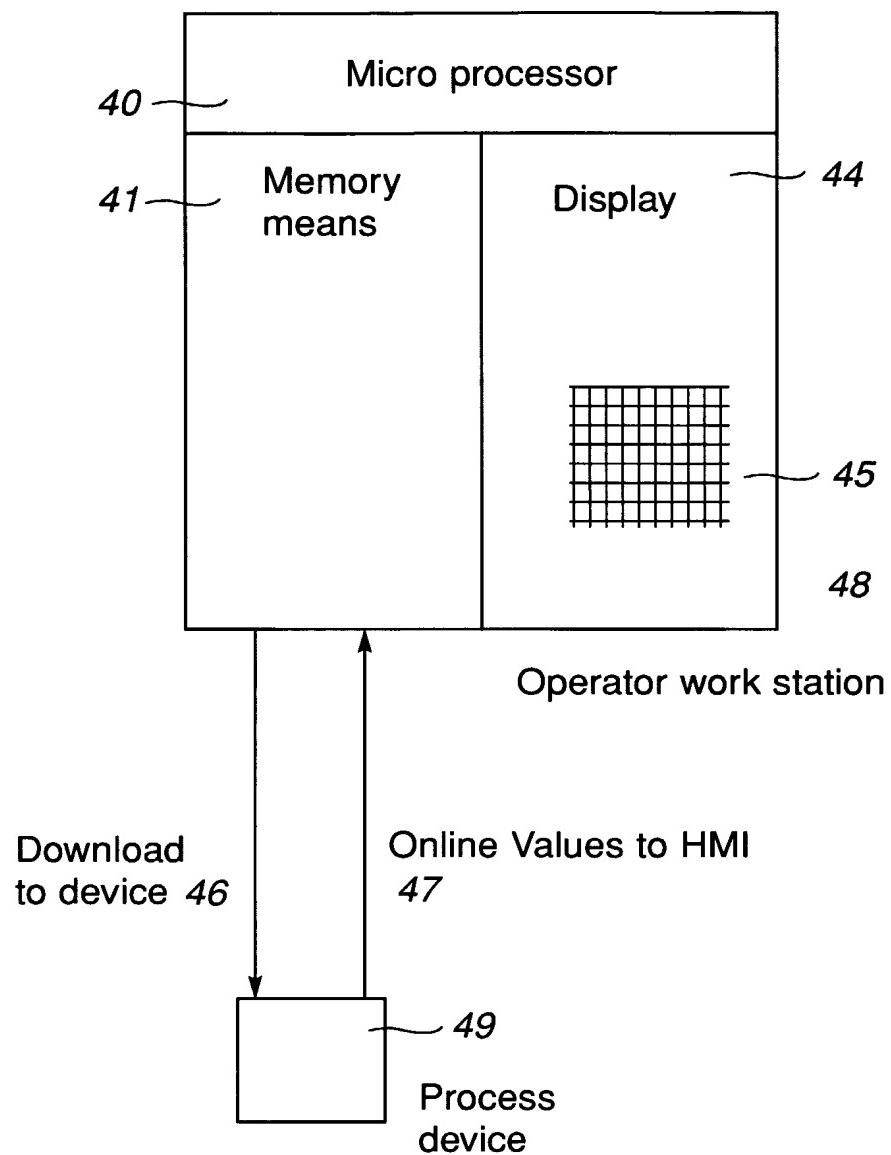


Fig. 4

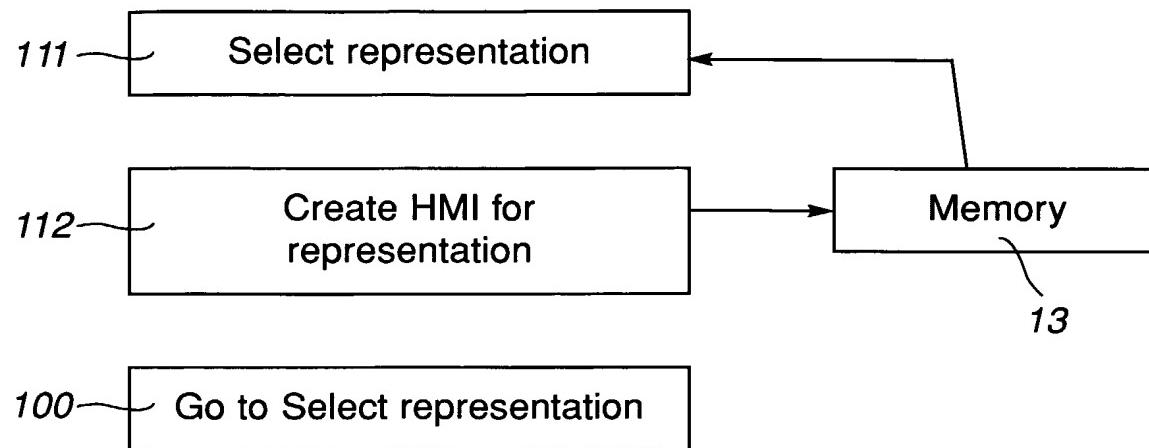


Fig. 5a

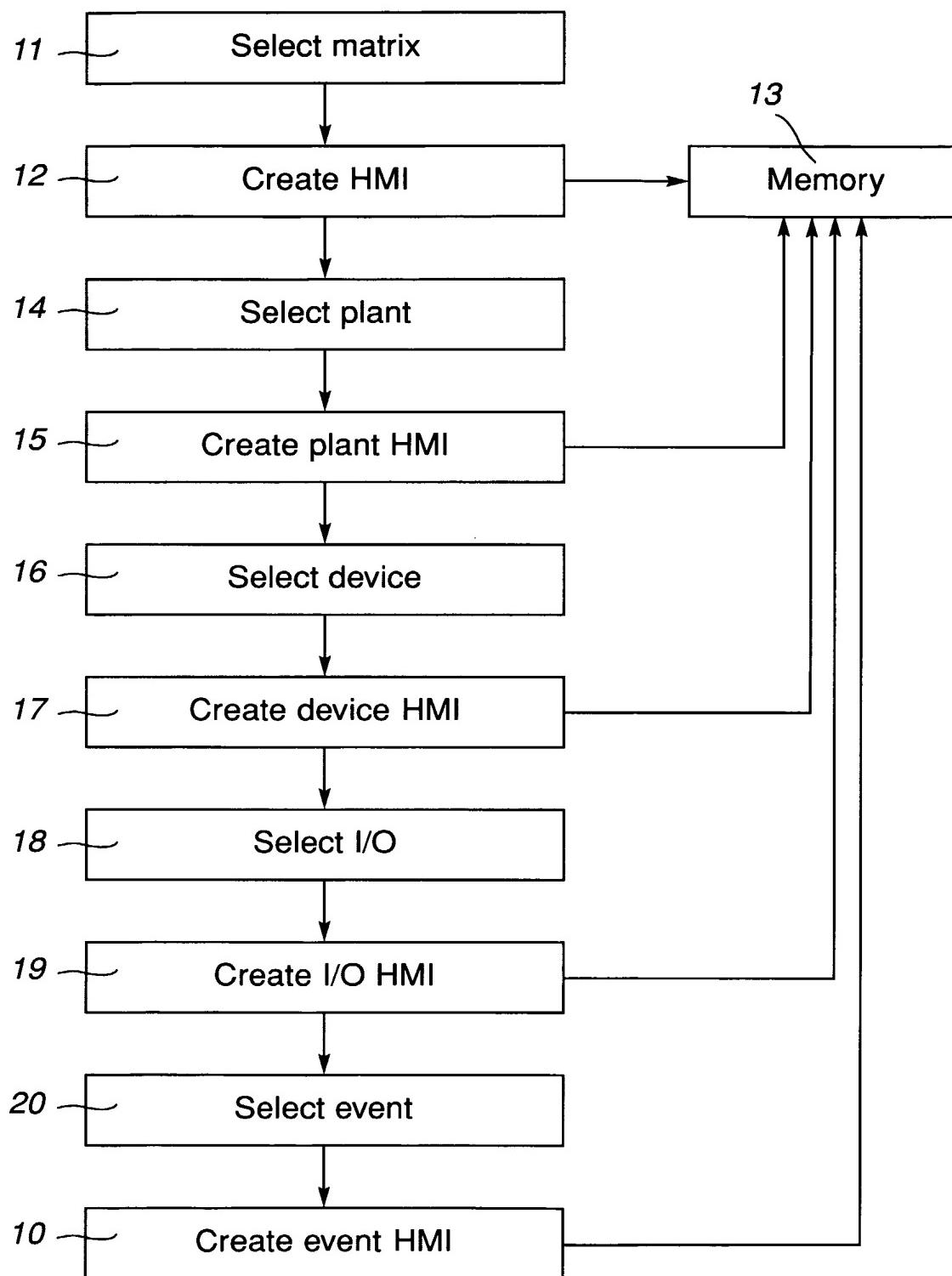


Fig. 5b

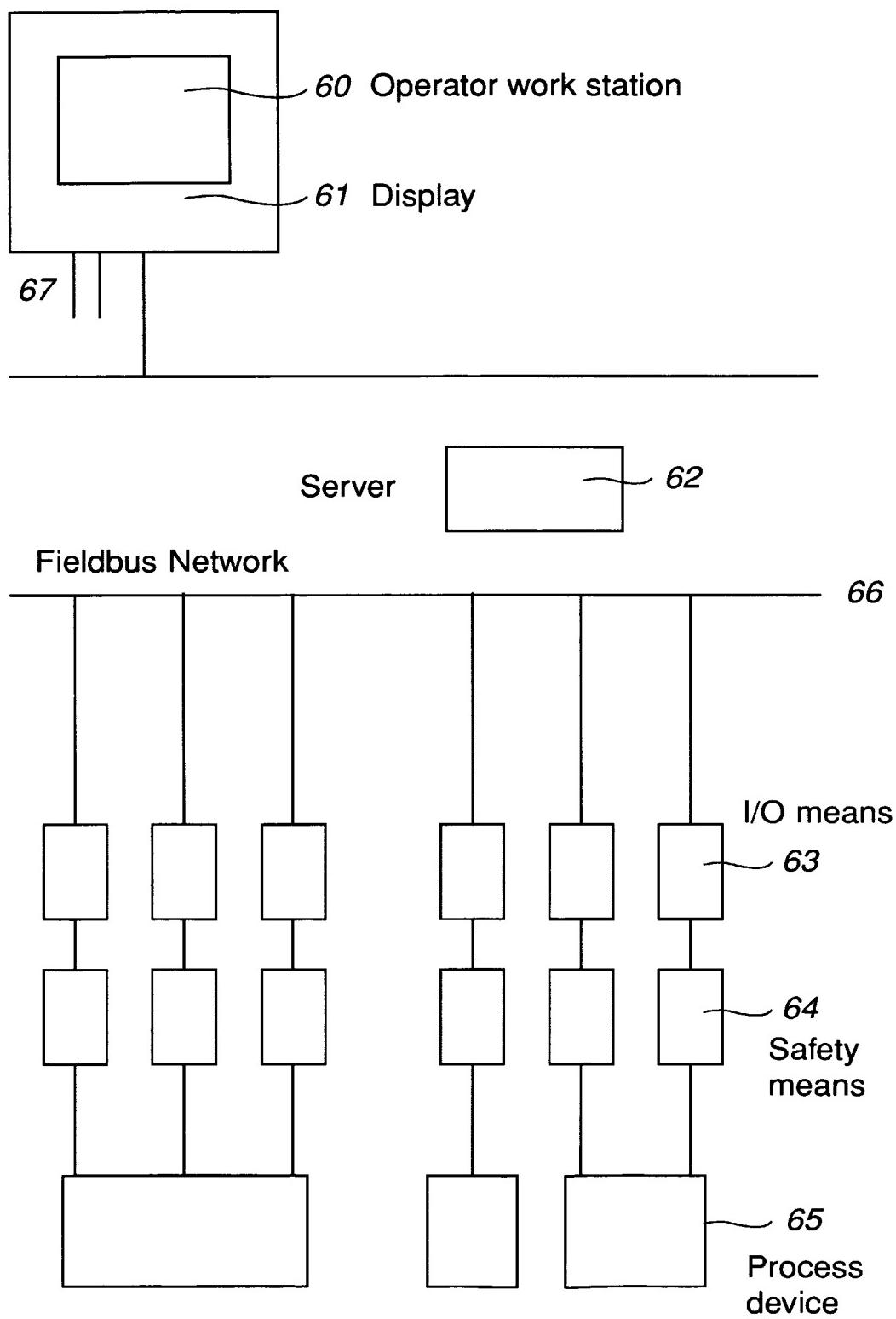


Fig. 6